

IN THE CLAIMS

For the convenience of the Examiner, all pending claims of the present Application are shown below.

1. (Currently Amended) A method for processing a packet of data in a communication network, comprising:

receiving the packet;

determining whether the packet is associated with an existing virtual path in the communication network;

creating a new virtual path to process the packet in response to the packet not being associated with any existing virtual path;

processing the packet according to the existing virtual path in response to the packet being associated with the existing virtual path, wherein processing of the packet is executed on a per-flow basis such that traffic management, packet forwarding, and access control operations are achieved for selected flows, whereby bandwidth allocations and buffer resource elections are executed for the selected flows.

2. (Original) The method of Claim 1, further comprising:

comparing a content of the packet to one or more records of existing virtual paths.

3. (Original) The method of Claim 2, wherein each record identifies how a particular packet is to be processed according to an associated existing virtual path.

4. (Original) The method of Claim 2, wherein the content of the packet includes a destination address and a source address for use in comparison with the one or more records of existing virtual paths.

5. (Original) The method of Claim 2, wherein the content of the packet includes an input port field for use in comparison with the one or more records of existing virtual paths.

6. (Original) The method of Claim 2, wherein the content of the packet includes a type field for use in comparison with the one or more records of virtual paths.

7. (Original) The method of Claim 1, further comprising:
processing the packet according to a predetermined general purpose processing in response to the packet not being associated with any existing virtual path.

8. (Original) The method of Claim 1, further comprising:
storing the new virtual path with any existing virtual paths.

9. (Original) The method of Claim 7, further comprising:
removing a least recently used existing virtual path to make room for the new virtual path.

10. (Original) The method of Claim 1, wherein the packet is an Ethernet datagram packet.

11. (Currently Amended) A system for processing a packet of data in a communication network, comprising:
means for receiving the packet;
means for determining whether the packet is associated with an existing virtual path in the communication network;
means for creating a new virtual path to process the packet in response to the packet not being associated with any existing virtual path;
means for processing the packet according to the existing virtual path in response to the packet being associated with the existing virtual path, **wherein processing of the packet is executed on a per-flow basis such that traffic management, packet forwarding, and access control operations are achieved for selected flows, whereby bandwidth allocations and buffer resource elections are executed for the selected flows.**

12. (Original) The system of Claim 11, further comprising:
means for comparing a content of the packet to one or more records of existing virtual paths.

13. (Original) The system of Claim 12, wherein each record identifies how a particular packet is to be processed according to an associated existing virtual path.

14. (Original) The system of Claim 12, wherein the content of the packet includes a destination address and a source address for use in comparison with the one or more records of existing virtual paths.

15. (Original) The system of Claim 12, wherein the content of the packet includes an input port field for use in comparison with the one or more records of existing virtual paths.

16. (Original) The system of Claim 12, wherein the content of the packet includes a type field for use in comparison with the one or more records of virtual paths.

17. (Original) The system of Claim 11, further comprising:
means for processing the packet according to a predetermined general purpose processing in response to the packet not being associated with any existing virtual path.

18. (Original) The system of Claim 11, further comprising:
means for storing the new virtual path with any existing virtual paths.

19. (Original) The system of Claim 18, further comprising:
means for removing a least recently used existing virtual path to make room for the new virtual path.

20. (Original) The system of Claim 11, wherein the packet is an Ethernet datagram packet.

21. (Currently Amended) A computer readable medium including code for processing a packet of data in a communication network, the code operable to:

receive the packet;

determine whether the packet is associated with an existing virtual path in the communication network;

create a new virtual path to process the packet in response to the packet not being associated with any existing virtual path;

process the packet according to the existing virtual path in response to the packet being associated with the existing virtual path, wherein processing of the packet is executed on a per-flow basis such that traffic management, packet forwarding, and access control operations are achieved for selected flows, whereby bandwidth allocations and buffer resource elections are executed for the selected flows.

22. (Original) The computer readable medium of Claim 21, wherein the code is further operable to:

compare a content of the packet to one or more records of existing virtual paths.

23. (Original) The computer readable medium of Claim 22, wherein each record identifies how a particular packet is to be processed according to an associated existing virtual path.

24. (Original) The computer readable medium of Claim 22, wherein the content of the packet includes a destination address and a source address for use in comparison with the one or more records of existing virtual paths.

25. (Original) The computer readable medium of Claim 22, wherein the content of the packet includes an input port field for use in comparison with the one or more records of existing virtual paths.

26, (Original) The computer readable medium of Claim 22, wherein the content of the packet includes a type field for use in comparison with the one or more records of virtual paths.

27. (Original) The computer readable medium of Claim 21, wherein the code is further operable to:

process the packet according to a predetermined general purpose processing in response to the packet not being associated with any existing virtual path.

28. (Original) The computer readable medium of Claim 21, wherein the code is further operable to:

store the new virtual path with existing virtual paths.

29. (Original) The computer readable medium of Claim 27, wherein the code is further operable to:

remove a least recently used existing virtual path to make room for the new virtual path.

30. (Original) The computer readable medium of Claim 21, wherein the packet is an Ethernet datagram packet.